

OLEVEL P2
A14 SHADING
INEQUALITIES
MARK SCHEME

1	(a)	$y < 12$ y and $2x$ seen in an equality or an inequality $y > 2x$ oe	B1 M1 A1	Condone $4 < y < 12$ and $y \leq 12$ SC1 for $y > x$
	(b) (i)	16	B1	
	(ii)	$d = 9$ or (3, 9)	B1 [5]	

2	(a)	$\frac{1}{2}$	1	If 0 scored, SC1 for both correct, any symbol M1 for two correct vertices or reflection in $y = 2$ or $x = -2$
	(b)	$y \geq -1$ $y \leq \frac{1}{2}x$	1 1	
	(c)	Correct triangle drawn	2	
	(d) (i)	2	1	
	(ii)	(8, -1)	1	
	(iii)	12	2ft	

Qu	Answers	Mark	Part marks
3	(a)	pentagon	1
	(b)	$x \leq 5$ oe $x + y \leq 6$ oe	1 1
	(c)	line passing through (5, 0) and (8, 3)	1
	(d)	−1 cao	1
		After 0 + 0, C1 for $x \dots 5$ oe and $x + y \dots 6$ oe with incorrect (in)equalities for “...”.	

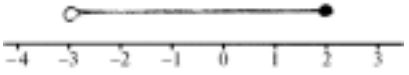
4	(i)	Correct region shaded with 4 correct lines	3	B2 for 3 or 4 correct lines or B1 for 2 correct lines
	(ii)	$-\frac{1}{2}$ oe	2	B1 for (3, 3) or (1, 4) soi

5(d)(i)	Ruled line through (0,2.5) and (5, 0)	2	B1 for ‘correct’ freehand line or line with a gradient of -0.5 or line through (0, 2.5) with negative gradient or line through (5, 0) with negative gradient
5(d)(ii)	Correct region unambiguously identified	1	FT provided <i>their</i> straight line with negative gradient and the 3 given lines form a quadrilateral below $y = 4$

6(a)	Correct region indicated	3	B1 for ruled line $x = 1$ B1 for ruled line $x + y = 5$
(b)(i)	6.32...	2	M1 for $\sqrt{(5 - -1)^2 + (5 - 3)^2}$
(b)(ii)	$y = -3x + 10$ oe	4	B3 for (2, 4) and $y = -3x + c$ OR B2 for $y = -3x + c$ OR B1 for (2, 4) or $\frac{5-3}{5-(-1)}$ oe and M1 for $-\frac{1}{\text{their } \frac{1}{3}}}$

7(a)(i)	Ruled line from $(-4, 2)$ to $(0, -2)$	2	B1 for short or unruled line or for two correct coordinates soi
(a)(ii)	Correct region shaded	2	B1 for line $y = 2$ drawn
(b)	Gradient of $2y = x + 4$ is $\frac{1}{2}$ soi so Gradient of line L is -2	B1	
	$8 = -2 \times 1 + c$	M1	FT substitution of $(1, 8)$ into $y = \textit{their } mx + c$ for L
	Rearrangement to $c = 10$ and hence showing $y = 10 - 2x$	A1	
(c)	$(8.4, 6.2)$ oe from algebra	3	M1 for a correct method to eliminate one variable A1 for either $x = 8.4$ or $y = 6.2$ nfw After A0 , SC1 for a pair of values that satisfy either equation or for correct answers with no working

8(a)(i)	$\frac{7}{3} < x \leq 7$ oe final answer	3	B2 for $\frac{7}{3} < x \leq 7$ seen or final answer $\frac{7}{3} < x$ or final answer $x \leq 7$ B1 for either correct inequality seen or M1 for $\frac{10}{3} [\dots] x + 1 [\dots]$ $\frac{24}{3}$ or $10 - 3 [\dots] 3x [\dots] 24 - 3$ soi
(a)(ii)	5	1	
(b)	$y \geq 0$ $x \geq y$ oe $2x + y \leq 6$ oe	3	B1 for each inequality If 0 scored, SC1 for 3 correct equations soi

9(a)		1	
(b)	$y \geq 0$ $x \leq 4$ oe $y \leq \frac{1}{2}x$ oe	3	B1 for each inequality After 0, SC1 for 3 correct equations soi
(c)	$-1 \leq m < 4.5$ final answer	3	B2 for $-1 \leq m < 4.5$ seen or final answer $-1 \leq m$ or final answer $m < 4.5$ or M1 for $-\frac{12}{4} \dots m - 2 \dots \frac{10}{4}$ or $-12 + 8 \dots 4m \dots 10 + 8$